What is WAQA?

WAQA stands for "Washington Air Quality Advisory." It is the Washington State Department of Ecology's tool for informing people about the health effects of air pollution. The pollutants included in WAQA are ground-level ozone, fine particle pollution ($PM_{2.5}$), carbon monoxide, sulfur dioxide, and nitrogen dioxide.

WAQA is very similar to the Environmental Protection Agency's (EPA's) national information tool, the Air Quality Index (AQI). Both use color-coded categories to show when air quality is good, moderate or unhealthy. The difference is that WAQA shows the health effects of $PM_{2.5}$ at lower levels than the AQI does. In other words, WAQA shows that air quality is unhealthy earlier – when there is less $PM_{2.5}$ in the air. Some examples of $PM_{2.5}$ are smoke and dust.

Why did Ecology develop the WAQA?

Ecology believes WAQA better protects public health. There is new information about health risks from $PM_{2.5}$. Studies show that levels of $PM_{2.5}$ in the air that we previously believed to be safe can cause illness and death. In fact, studies have not been able to identify any level of $PM_{2.5}$ that is completely healthy – that is, that has no health effects at all.

As a result of this new information, EPA changed its health standard so that air quality is now considered unhealthy when there is less $PM_{2.5}$ in the air. However, EPA has not yet changed the AQI to inform people about the new information on $PM_{2.5}$ health risks. EPA does not expect to update the AQI until sometime in 2008. In the meantime, the AQI is not showing accurate information about health risks.

Therefore, Ecology developed WAQA to tell people that $PM_{2.5}$ can affect their health at lower levels than the AQI shows.

How did Ecology decide on the air quality levels in WAQA?

Ecology looked at many health studies, considered recommendations from EPA staff and EPA's Clean Air Scientific Advisory Committee, and examined Canada's $PM_{2.5}$ standards. Based on this information, Ecology set a goal to keep $PM_{2.5}$ 24-hour concentrations below 20 micrograms per cubic meter. The pollution levels in WAQA's color-coded categories are based on this Ecology goal, the new federal $PM_{2.5}$ standard, and recommendations from scientific and health professionals.

WAQA looks very similar to the AQI. How is it different?

WAQA looks the same as the AQI because it uses the same color-coded air quality categories. Only the breakpoints for these categories are different.

The table below shows WAQA's breakpoints on the left and AQI's on the right. The numbers are micrograms per cubic meter.

Category	WAQA Estimated 24-hour avg. µg/m^3	AQI Estimated 24-hour avg. µg/m^3
Good (0 - 50)	0 to 13.4	0 to 15.4
Moderate (51 - 100)	13.5 to 20.4	15.5 to 40.4
Unhealthy for Sensitive Groups (101 - 150)	20.5 to 35.4	40.5 to 65.4
Unhealthy (151 - 200)	35.5 to 80.4	65.5 to 150.4
Very Unhealthy (201 - 300)	80.5 to 135.4	150.5 to 250.4
Hazardous (301 - 500)	>135.4	>250.4

As you can see, when air quality is good, WAQA and AQI are either the same or very similar. But when air pollution levels begin to rise, WAQA shows air quality becoming unhealthy sooner than AQI does. Ecology believes this provides more accurate information about air pollution to the public so that those who are at risk can take action to better protect their health.

The following table shows a comparison of what AQI and WAQA show as health effects of air pollution at different levels.

Category	EPA AQI	WAQA
Good	None	None
Moderate	Unusually sensitive people should consider reducing prolonged and heavy exertion.	Some people with lung and heart disease, stroke, diabetes, or a current respiratory infection may be sensitive to air pollution at this level and should consider limiting outdoor activity
Unhealthy for Sensitive Groups	People with heart or lung disease, older adults, children should reduce prolonged or heavy exertion	People with lung and heart disease, stroke, diabetes or a current respiratory infection, infants, children, and older adults, should limit outdoor activity.
Unhealthy	People with heart or lung disease, older adults, and children should avoid prolonged or heavy exertion. Everyone else should reduce prolonged or heavy exertion.	Everyone should try and limit outdoor activity. If possible, people with lung and heart disease, stroke, or respiratory infections, infants, children, and older adults should stay indoors
Very unhealthy	People with heart or lung disease, older adults, and children should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.	Everyone should try to stay inside. People with lung and heart disease, stroke, diabetes, or a current respiratory infection should limit indoor activity levels low. Shut windows and doors if it is not too hot. Set air conditioners on the recirculate mode if this is available.
Hazardous	People with heart or lung disease, older adults, and children should remain indoors and keep activity levels low. Everyone else should avoid all physical activity outdoors	Everyone should try to stay indoors. Limit physical activity. Shut windows and doors, if it is not too hot. Set air conditioners on the recirculate mode if this is available. If it is too hot to shut windows and doors, consider leaving the area until air quality improves.

How does unhealthy air affect people?

Fine particulate matter is a major air pollutant that has been shown to cause a number of health symptoms and complications. People will have difficulties breathing polluted air depending on their age and their health. People most sensitive to air pollution include:

- Infants and children
- Older adults (those 65 and older)
- People with lung and heart disease, stroke, diabetes, or those with a current respiratory infection.

People sensitive to air pollution may experience problems sooner and at lower levels of pollution. When people are active they breathe more air into their bodies. If air pollution levels rise, they will take in more pollutants. The amount of outdoor activity that may cause difficulties for people will be different. For example, when air pollution levels rise, daily activities such as walking the dog may cause problems for some people. Others may not be affected until doing more strenuous activity such as running. People should limit outdoor activity depending on how air quality affects them.